

CLAIMS

- 1.- A propeller having a geometric pitch and  
the propeller being configured so as to rotate about an axis of rotation (100),  
driven by a drive shaft of a craft for the purpose of propelling said craft in a first  
direction (D1) parallel to the axis of rotation (100) and corresponding to the forward  
motion direction of the craft, propelling a fluid in a second general direction (D2)  
opposite to said first direction (D1);  
the propeller comprising:  
a base (2, 15);  
a plurality of blades (1, 14), each blade  
having a surface defined by a first end (1A, 14A) joined to the base and a  
second free end (1B, 14B) separating a leading edge (1C, 14C) of the  
blade from a trailing edge (1D, 14D) of the blade;  
having an angle of attack;  
having a convex surface suction side (4);  
extending in a third direction (D3) from the first end (1A, 14A) towards the  
blade tip (1B, 14B), said third direction (D3) being a direction in which one  
section (1E) of the blade extends in a plane including the axis of rotation  
(100) and the blade tip (1B, 14B);  
having the leading edge (1C, 14C) upstream from the trailing edge (1D, 14D),  
the leading edge (1C, 14C) and the trailing edge (1D, 14D) substantially  
extending in said direction (D3) from the first end (1A, 14A) to the blade tip  
(1B, 14B);  
characterized in that  
the blade tip (1B, 14B) is an end point separating the leading edge (1C, 14C) from  
the trailing edge (1D, 14D);  
said third direction (D3) forms an acute angle  $\alpha$  with said first direction (D1),  $10^\circ \leq \alpha$   
 $\leq 80^\circ$ , in a plane including the axis of rotation (100).  
each blade:  
has a length equal to a length of one blade perpendicular to the axis of rotation  
divided by  $\sin \alpha$ ;  
has a surface equal to a surface of one blade perpendicular to the axis of  
rotation divided by  $\sin \alpha$ ;  
for increasing thrust provided by the blade.
- 2.- A propeller according to claim 1, characterized in that  $20^\circ \leq \alpha \leq 70^\circ$ .

3.- A propeller according to claim 2, characterized in that  $30^\circ \leq \alpha \leq 60^\circ$ .

4.- A propeller according to claim 3, characterized in that  $40^\circ \leq \alpha \leq 50^\circ$ .

5.- A propeller according to claim 4, characterized in that  $\alpha = 45^\circ$ .

6.- A propeller according to any of the preceding claims, characterized in that it  
5 has two blades (1, 14).

7.- A propeller according to any of claims 1-5, characterized in that it comprises  
at least three blades (1, 14).

8.- A propeller according to any of the preceding claims, characterized in that  
the blades have an elongated configuration in the direction from the first end (1A, 14A)  
10 to the second end (1B, 14B).

9.- A propulsion system, characterized in that it comprises at least one propeller  
according to any of claims 1-8, and a drive shaft (16) joined to the propeller such that  
the drive shaft (16) can turn the propeller about its axis of rotation (100).

10.- A propulsion system according to claim 9, characterized in that it further  
15 comprises a nozzle (9) concentrically located around the axis of rotation (100) of the  
propeller and laterally enveloping the propeller, said nozzle having a fluid entry front  
end and a fluid exit rear end.

11.- A propulsion system according to any of claims 9 and 10, characterized in  
that each blade (14) is joined to the drive shaft or to an element configured as an axial  
20 extension of the drive shaft (18, 21) by means of at least one retention brace (19) on  
the suction side (4) to withstand centrifugal force.

12.- A propulsion system according to claim 11, characterized in that each  
blade is joined to the drive shaft or to an element configured as an axial extension of  
the drive shaft (18, 21) by means of at least two retention braces (19).

13.- A propulsion system according to any of claims 11-12, characterized in that  
25 each retention brace (19) is arranged perpendicularly to the axis of rotation (100) of the  
propeller.

14.- A propulsion system according to any of claims 11-13, characterized in that  
each retention brace has a symmetrical profile and a shape of a blade in feather  
30 position for craft cruising speed.

15.- A propulsion system according to any of claims 11-14, characterized in that  
it forms part of a turbojet fan, each blade (14) being joined to a propeller base forming  
part of the drive shaft constituted of a rotor (21) of the turbojet, each blade (14) being  
joined to said rotor (21) also by means of at least two retention braces (19).

16.- A propulsion system according to claim 15, characterized in that the  
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propeller is radially surrounded by a fairing tube (22).

17.- A craft, characterized in that it includes a propulsion system according to any of claims 9-16.

18.- A craft according to claim 17, characterized in that it is an aquatic craft.

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19.- A craft according to claim 17, characterized in that it is a submarine craft.

20.- A craft according to claim 17, characterized in that it is an aircraft.